

Scale drawings

Since it is not always possible to draw on paper the actual size of real-life objects such as the real size of a car, an airplane, we need scale drawings to represent the size like the one you see below of a van.

In real-life, the length of this van may measure 240 inches. However, the length of a copy or print paper that you could use to draw this van is a little bit less than 12 inches

Since $240/12 = 20$, you will need about 20 sheets of copy paper to draw the length of the actual size of the van

In order to use just one sheet, you could then use 1 inch on your drawing to represent 20 inches on the real-life object

You can write this situation as 1:20 or $1/20$ or 1 to 20

Notice that the first number always refers to the length of the drawing on paper and the second number refers to the length of real-life object

Example #1:

Suppose a problem tells you that the length of a vehicle is drawn to scale. The scale of the drawing is 1:20

If the length of the drawing of the vehicle on paper is 12 inches, how long is the vehicle in real life?

Set up a proportion that will look like this:

Do a cross product by multiplying the numerator of one fraction by the denominator of the other fraction

We get :

Length of drawing \times 20 = Real length \times 1

Since length of drawing = 12, we get:

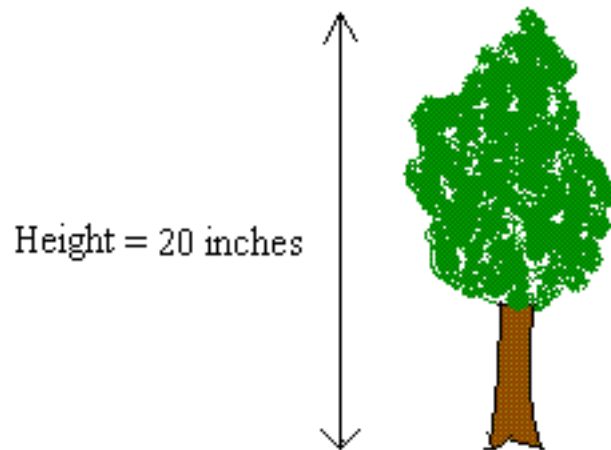
$12 \times 20 = \text{Real length} \times 1$

240 inches = Real length

Example #2:

The scale drawing of this tree is 1:500

If the height of the tree on paper is 20 inches, what is the height of the tree in real life?



Set up a proportion like this:

Do a cross product by multiplying the numerator of one fraction by the denominator of the other fraction

We get :

$$\text{Height of drawing} \times 500 = \text{Real height} \times 1$$

Since height of drawing = 20, we get:

$$20 \times 500 = \text{Real length} \times 1$$

$$10000 \text{ inches} = \text{Real height}$$